What is claimed is:

1. An isolated polynucleotide comprising a nucleic acid sequence which encodes a polypeptide containing the amino acid sequence depicted in SEQ ID NO:2 and having a calcineurin-like phosphoesterase function.

2. The polynucleotide according to claim 1, wherein the nucleic acid sequence is selected from the group consisting of:

(a) the nucleic acid sequence as shown in SEQ ID NO:1;

(b) the complement of (a); and

(c) a nucleic acid sequence that differs from (a) or (b) due to the degeneracy of the genetic code.

3. The polynucleotide according to claim 1, wherein the nucleic acid sequence is selected from the group consisting of:

(a) the nucleic acid sequence as shown in SEQ ID NO:3;

(b) the complement of (a); and

(c) a nucleic acid sequence that differs from (a) or (b) due to the degeneracy of the genetic code.

4. An isolated polynucleotide comprising a variant of a nucleic acid sequence, wherein said nucleic acid sequence encodes the amino acid sequence depicted in SEQ ID NO:2, and wherein the variant and said nucleic acid sequence have at least 90% sequence identity.

5. The polynucleotide according to claim 4, wherein the variant and said nucleic acid sequence have at least 95% sequence identity.

6. An isolated polynucleotide that is capable of hybridizing under stringent conditions to the nucleotide sequence of SEQ ID NO:1 or the complement thereof.

7. The polynucleotide of claim 6, wherein the polynucleotide encodes a calcineurin-like phosphoesterase.

8. An isolated polypeptide comprising a fragment of SEQ ID NO:2, wherein said fragment comprises at least 200 consecutive amino acid residues of SEQ ID NO:2.

9. The polypeptide according to claim 8, wherein the fragment consists of SEQ ID NO:2.

10. An isolated polypeptide comprising a variant of a fragment of SEQ ID NO:2, wherein said fragment includes at least 200 consecutive amino acid residues of SEQ ID NO:2.

11. The polypeptide according to claim 10, wherein the variant and said fragment have at least 90% sequence identity.

12. An antibody capable of binding to the amino acid sequence depicted in SEQ ID NO:2 with a binding affinity of no less than 10^5 M^{-1}.

13. A CLPP1 detection kit comprising:

(a) an antibody capable of binding to the amino acid sequence depicted in SEQ ID NO:2 with a binding affinity of no less than 10^5 M^{-1}, or

(b) a probe that hybridizes to the nucleotide sequence of SEQ ID NO:1 or the complement thereof.

14. A host cell containing the polynucleotide of claim 1 or a variant thereof.

15. A transgenic non-human animal comprising the polynucleotide of claim 1 or a variant thereof.

16. A non-human animal, wherein at least one allele of a gene in the genome of said animal is functionally disrupted, and wherein said gene encodes a polypeptide that has at least 70% sequence identity to SEQ ID NO:2.

17. A method for identifying an agent capable of binding to CLPP1, said method comprising the steps of:

contacting a candidate agent with a polypeptide comprising:

(a) an amino acid sequence recited in SEQ ID NO:2,

(b) a fragment of SEQ ID NO:2, or

(c) a variant of (a) or (b); and

detecting the binding between said candidate agent and said polypeptide.

18. A method for identifying an agent capable of modulating the level of activity of CLPP1, comprising the steps of:

contacting a candidate agent with an polypeptide comprising:

(a) an amino acid sequence recited in SEQ ID NO:2, or

(b) a biologically active portion of SEQ ID NO:2; and

detecting a change in the level of an activity of said polypeptide.

19. A pharmaceutical composition for preventing or treating CLPP1-related diseases, comprising a pharmaceutically acceptable carrier and an agent that modulates CLPP1 activity or CLPP1 gene expression.

20. A method for preventing or treating a CLPP1-related disease in a subject, comprising the step of:

introducing into the subject an effective amount of the pharmaceutical composition of claim 19.

21. A polynucleotide capable of inhibiting human CLPP1 gene expression by RNA interference.

22. The polynucleotide according to claim 21, comprising a siRNA sense strand or a siRNA antisense strand selected from Tables 3 and 4.

23. A method, comprising introducing a polynucleotide of claim 21 into a cell expressing human CLPP1 gene, thereby inhibiting the expression of said gene in said cell by RNA interference.